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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Christian Maletzko

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EXAMINER

ZEMEL, IRINA SOPHIA

ART UNIT

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1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/519,801	Applicant(s) MALETZKO ET AL.	
	Examiner Irina S. Zemel	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 6-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 16-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 19 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed limitations to mixtures of claimed polymers is not disclosed anywhere in the specification. In addition, mixtures with another "cell opener" such as cut glass is especially not supported. Furthermore, the claimed range of the amounts is not supported for any mixed cell openers. Concept of using mixed cell openers does not appear to be in possession in the inventors at the time the invention was made. As a further note, although the claimed inventions do not have to be exemplified, that no illustrative examples use a mixture of any cell openers.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 19, it is not clear whether the claimed range defines the amounts of the first polymer, i.e., PA, or any of the claimed polymers, or their

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mixtures, or combinations with glass. It is further not apparent whether the claimed glass is present in addition to the claimed polymers, or as one of the alternative.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1- 5 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 97/38048 to Kaneka Corporation, (hereinafter "Kaneka").

US Patent 6,596,782 is a family equivalent of the cited Kaneka WO document and is used in the rejections as the equivalent English translation of the Kaneka document (the references are made to the US document).

The rejection of claims 1-5 stands as per reasons of record. Insofar as the newly added claims 16-19, those limitations, those limitations are still considered to have been obvious from the teachings of the reference.

As discussed in the previous office action, the reference expressly discloses the foams having 37 % open cell content as well as their properties. The reference further discloses suitable amounts of hydrophobic polymer of up to 20 % of the composition, including polyethylene oxide. The reference also separately addresses the effect of both the small size cells and high open cell content. While the properties that EACH of

those parameters give the final foam may be undesirable for one end use, it is desirable for another. The reference further discloses in the tables, that mainly two parameter govern the content of open cells, i.e., processing pressure and the amount of the hydrophilic polymer. Varying the amount of hydrophilic polymer alone, without increasing pressure appears to be sufficient to obtain the compositions of much higher open cell content as per illustrative examples in table 2. Thus, it would have been completely within the skills of an ordinary artisan to vary the processing conditions and amounts of hydrophilic polymer to arrive to final product having large cell diameter and high open cell content, which product exhibits the properties characteristic of high cell content, such as less flexibility (higher rigidity), but devoid of disadvantages of small cell diameter (such as shape distortion). Therefore, obtaining foams with high % of open cells and certain cell diameter is clearly within the skills of an ordinary artisan based on the overall teachings (and NOT just preferred embodiments) of the reference which expressly discloses expected results that are achieved by increasing % open cells, and effects of cell size, and further provides guidance on how to vary this characteristics of the final product.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneka as applied to claim 1 above, and further in view of US Patent 6,077,875 to Sasaki et al., (hereinafter "Sasaki").

This is alternative rejection of claim 3, should the claimed DSC peak be interpreted as the property the underlying PP resin in the expandable bead.

The Kaneka reference does not address the DSC behavior of the expanded beads, however PP based beads which have, in the DSC thermodiagram, at least one high-temperature peak at a higher temperature than the melting peak of the propylene polymer employed are known in the art as disclosed in Sasaki. The high temperature peak is a function of the processing conditions of the expandable beads, and such beads exhibit improved mechanical properties. Thus, using of such PP base resins in invention of Kaneka (or comparative examples) would have been obvious to obtain molding of improved properties.

Response to Arguments

Applicant's arguments with respect to rejection of claim 3 as being indefinite have been fully considered and are persuasive. The 112 indefiniteness rejections set forth in the previous office action has been withdrawn in view of the amendments and the arguments.

Applicant's arguments filed 3-4-2009 with respect to the art rejections of the claims have been fully considered but they are not persuasive. The arguments are based on the fact that the examiner used a single comparative example as the basis for the rejection and that the comparative example, which is outside of the claimed invention does not constitute teachings for obtaining foams with even lower amounts of closed cells. The applicants argue that the reference teaches away from lower content of closed cells as such foams provide inferior results.

This arguments are not persuasive for several reasons. While the examiner acknowledged that the reference prefers closed cell foams for the use intended by the reference, the examiner strongly disagrees that the teachings of the reference are limited to such preferred embodiments. Mogami expressly teaches what happens by increasing the amount of open cell and how to obtain such foams. Again, while lower heat resistance, for example, may be undesirable for some applications, such property can be highly sought after for other applications, where thermal conductivity is desired. The skills of an ordinary artisan allow the artisan to evaluate the reference what it teaches as a whole and to make reasonable conclusion within such skills.

The applicants further argue that the examiner is incorrect in her assertion "that the cushioning and flexibility properties of the molded articles obtained from beads in accordance with comparative example 7 would fall into the middle range, while maintaining all other properties at a high level." This argument is based on applicant's assertion that "as set forth in Table 2 of Mogami, comparative example 7 was kept in a closed vessel at a pressure of 80 kg/cm²G, i.e., outside of the pressure range of 25 to 75 kg/cm²G recited in claim 1 of Mogami." This arguments is, at best, not understood. It is irrelevant how it was obtained and whether it was obtained according to the preferred embodiments of the reference. The fact is, that it was obtained, and its properties are reported. The properties are such, that flexibility and cushioning properties are reduced, or, in other words, the rigidity is increased, which constituted an expressed teachings to obtain such foams via whatever process when such rigid foams are desired. Simply because Mogami teaches that by varying the process conditions,

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such as exceeding pressure of 75 kg/cm²G, “the cell diameter becomes too small and the closed cell ratio is lowered, thus deteriorating shrinking resistance, shape stability, mechanical strength and heat resistance of molded articles.”, which may be undesirable for the intended applications of Mogami, does not constitute teaching away. To the contrary, it provides expressed teachings, especially along with actual data reported for comparative example 7 in table 2 for obtaining foams with desirable set of properties – which, as acknowledged by the examiner, may not be desirable for one application, but are sought for another applications. Rigidity of foams is an example of one highly sought property for numerous applications. In addition, while the reference discusses that some of the properties of foams containing higher amounts of open cells become worse or unacceptable, according to table 2, majority of the properties, such as mechanical strength, heat resistance, water resistance, etc., is reported to be excellent for the comparative example 7 with high open cell content. Therefore, the examiner is still of the opinion that the reference, contrary to applicant's assertion of teaching away from higher amount of open cell content, still fairly suggests increasing the amounts of open cells (and also teaches how to achieve it by modification of the process parameters) to obtain foams of desired final properties for specific applications where such properties are needed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina S. Zemel whose telephone number is (571)272-0577. The examiner can normally be reached on Monday-Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571)272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Irina S. Zemel/
Primary Examiner, Art Unit 1796

Irina S. Zemel
Primary Examiner
Art Unit 1796

ISZ